

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 May 2004 (27.05.2004)

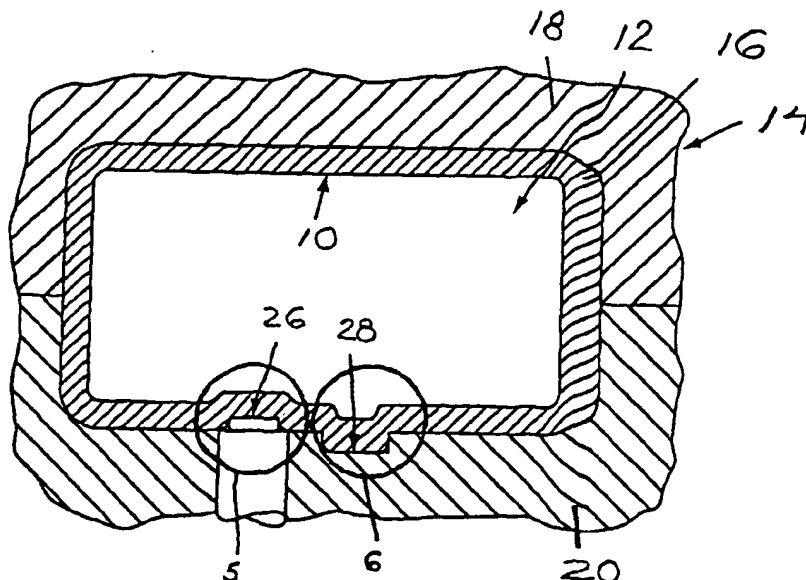
PCT

(10) International Publication Number
WO 2004/043623 A1

- (51) International Patent Classification⁷: B21D 26/02, 28/28 (74) Agent: ASHER, Robin, W.; Clark Hill PLC, 500 Woodward Avenue, Suite 3500, Detroit, MI 48226-3435 (US).
- (21) International Application Number: PCT/US2003/036105 (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 12 November 2003 (12.11.2003) (30) Priority Data: 60/425,254 12 November 2002 (12.11.2002) US (84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- (25) Filing Language: English (26) Publication Language: English
- (71) Applicant (*for all designated States except US*): COSMA INTERNATIONAL [US/US]; 1807 E. Maple, Troy, MI 48083 (US).
- (72) Inventor; and (75) Inventor/Applicant (*for US only*): DICESARE, John [CA/CA]; 14 Crest Haven Street, Kitchner, Ontario N2P 2L6 (CA).
- Published:
— with international search report

[Continued on next page]

(54) Title: METHOD OF FORMING HYDROFORMED MEMBER WITH OPENING



(57) Abstract: A method for manufacturing a hydroforming member includes the step of providing a blank (10). The blank (10) is defined by blank wall (16). The blank (10) is placed in a die assembly (14) having a die cavity (12) defined by a die surface (24). The blank (10) is expanded so that the blank wall (16) is forced against the die surface (24) to form the hydroformed member. A portion of the blank wall conforms against a wall-thinning element (26, 28) positioned along the die surface (24) to form a removable wall section (46, 50) in a portion of the blank wall (16). The removable wall section (46, 50) is then removed from the blank wall (16) to form an opening in the hydroformed member.